ABSTRACT OF THE DISCLOSURE

Techniques that allow the operations of a program to be intercepted and intervened with are known. These techniques are restricted by the same limited view of the program's data that is currently available at a base level of an object or method.

5 Some aspects need access to more information about the program's data of one or more objects than is available at the base level. An aspect of aspect-oriented programming systems, methods and environments examines the results of a computation at one stage. That aspect affects only subsequent stages of the computation, so that no circularity exists. Custom flow analyses, whether local or

10 global, can also be performed at each stage to propagate non-local information. "Macro" style programming can be reduced or avoided, as programming can be facilitated in terms of manipulating the results of various computational stages instead of in terms of manipulating blocks of code.